



Revolutionizing Behavior Research



GroupScan

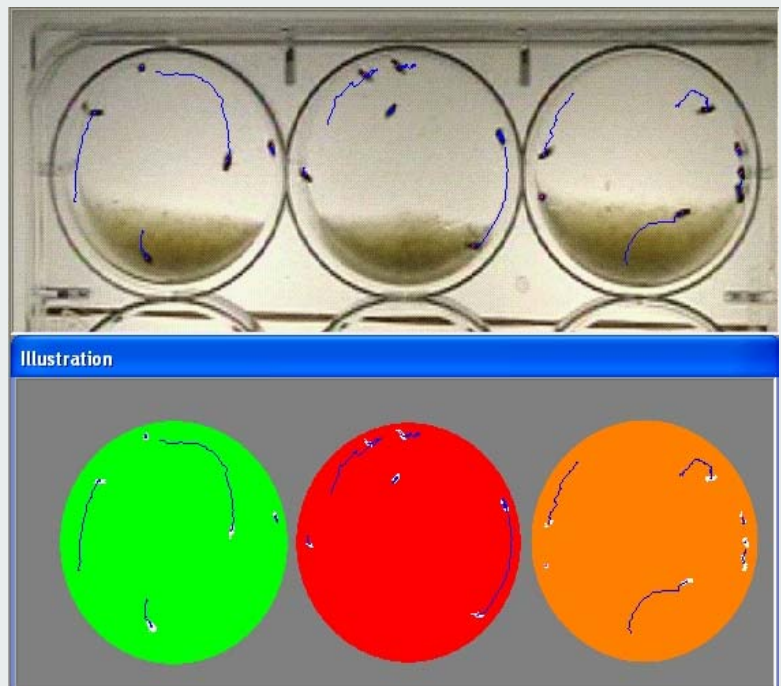
Features:

- Behavior Analysis software targeted for group behavior of a large number of animals
- High-Throughput capability up to 96 arenas simultaneously
- Real-time or offline
- Continuous lengthy recordings and analysis possible
- Easy plug-n-play functionality
- No user intervention required during experiment
- Detailed statistics about events that occurred during the experiment
- Automated Binned Data Output
- Automatic Graphing and Charting included!
- Validated to be more than 90% accurate with respect to human scoring
- Full color-analysis
- Automatic adaptation to changing environment, non-uniform lighting, etc.
- Result review, Visualization of Acquired Experiments
- Extensive Experiment Database Management included!
- Batch-mode allows user to run multiple videos successively without human intervention

Behavioral assay for lab animals is often performed based on the performance of single animal, whether it is an experiment on learning and memory, fear conditioning, anxiety, or depression. However, there are limitations to this assay. To circumvent limitations of single-animal assays, many experiments have now been designed to analyze the behavior of a group of lab animals.

Our GroupScan is a fully automated tool that provides support for this type of experiments, where a group of lab animals is housed in a single device/arena. The behavior/activity of this group of lab animals is analyzed, where the importance of behaviors of individual animal is not as important as the average behavior measurement of the group of animals. Very often, this group of lab animals are fruit flies, zebra fish, honey bees, etc., though the tool can also be equally applied to group of mice/rats, or larger animals.

GroupScan is used to test the levels of activity of the animals as a group, rhythms of their movements including randomness, inclination to stay close to the walls or move closer to the center of the cage, etc. Many such experiments are conducted in multiple groups of animals simultaneously.



Events GroupScan can detect:

- Current Visible Count
- Max Visible Count
- Current Live Count
- Max Live Count
- Total Average Speed
- Active Average Speed



GroupScan

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Applications:

- Group Animal Behavior
- Fruit Fly/Drosophila monitoring
- Zebra Fish monitoring
- Group of bees, birds, etc.
- Group of mice, rats, or even larger animals

Results:

- Objective Group Behavior Analysis Results
- Automatic Export to Excel
- Complete Experiment Database Management
- Summary of All Occurred Events, Times of occurrence, Durations, Latency to occurrence, various measures during occurrence
- Binned data at user-defined bin intervals

Product Options:

- High-Throughput Option (H Option)
- Realtime Option (R Option)
- High-Throughput Realtime Option (HR Option)

Requirements:

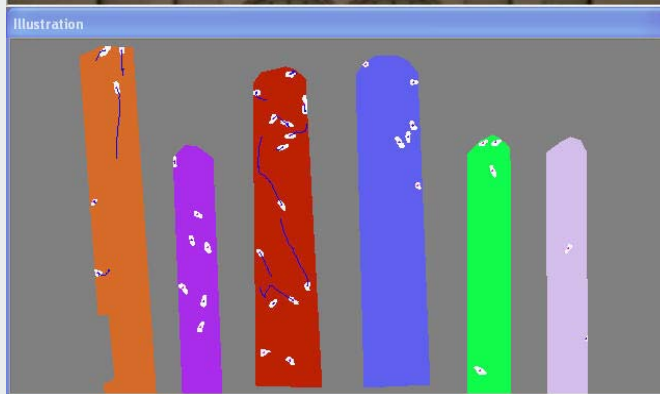
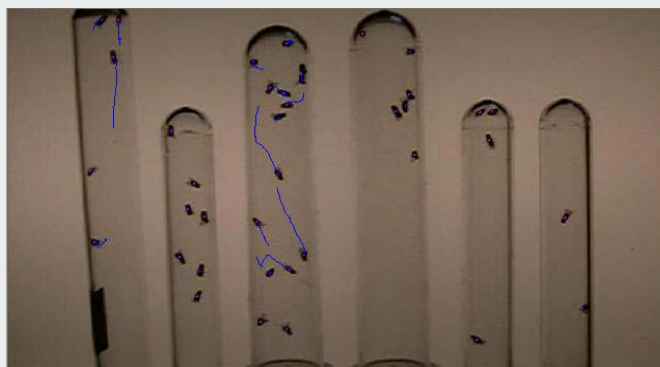
- Windows-based PC
- Intel High-speed Processor
- Special Videocard for realtime analysis
- Large HDD space for storage
- Good lighting conditions
- IR-switchable camera or red-light for night
- Video-multiplexer for multi-camera feed

GroupScan works on a unified background. It outputs detailed statistics about group animal behavior such as total average speed, active average speed, live count event, etc. It also allows the user to define specific events for detection.

The techniques for automation of the categorization and quantification of group activity amongst animals have been applied to achieve high throughput screening. System architecture has been optimized for high throughput screening at 96 arenas per system. The High-Throughput product option is necessary to analyze more than a single arena simultaneously. The Realtime Option is necessary to perform realtime analysis where the live video feed into the computer is compressed, encoded, saved to the hard drive while simultaneously full analysis of the video is performed.

Many advanced features are incorporated, including supporting full color analysis, automatic adaptation to non-uniform or changing environment, automated handling of light/dark areas, variable speed playback of specific video segment for specific detected behavior, etc.

Complete Turn-key systems including all necessary Hardware and Software are available. Custom design of your environment to facilitate analysis, including lighting condition setup, IR/red light setup, cage enclosures, video integration, and video-feed to computer is also available.



Unique Capabilities:

- Complete Hardware and Software Solution
- Analyzes 640x480 at 30 frames per sec
- Group Behavior Analysis of an unlimited number of animals in a given area
- Controls other hardware devices via I/O ports
- Detects animals in low contrast also!
- Works with any animal group type
- Records video into storage during analysis